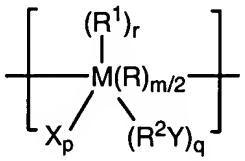
AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-45 (canceled)

46. (New) A polymer comprising:

a structural unit (1)



(1)

wherein R is individually selected from divalent hydrocarbon radicals;

R^1 is selected from the group consisting of monovalent hydrocarbon radicals, organic polymers and inorganic polymers;

R^2 is individually selected from divalent hydrocarbon radicals;

M is a tin, silicon or germanium atom, preferably tin or silicon, more preferably tin;

X is selected from H, Cl, Br and I;

Y is selected from H, Cl, Br and I;

m is an integer of 1 or 2;

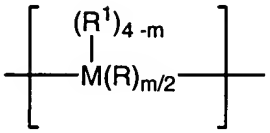
p is an integer of 1 or 2;

q is an integer of 1 or 2;

r is an integer of 0 or 1; and,

wherein m+p+q+r = 4, or

a structural unit (2)



(2)

wherein R is individually selected from divalent hydrocarbon radicals;

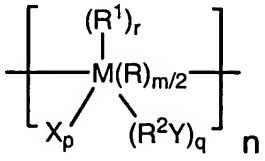
R^1 is selected from the group consisting of monovalent hydrocarbon radicals, H, Cl, Br, I, organic polymers and inorganic polymers;

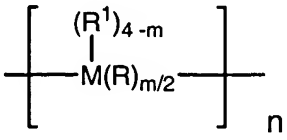
M is a tin, silicon or germanium atom, preferably tin or silicon, more preferably tin; and,

m is an integer of 1-4.

47. (New) A polymer according to claim 46, wherein the polymer is a hydrogenation catalyst when X is H.

48. (New) A polymer according to claim 46, comprising one or both of the following structures





wherein n is an integer of 10-100000, more preferably 50-50000, more preferably 200-10000.

49. (New) A polymer according to claim 46, wherein R is selected from the group consisting of C_{1-20} alkanediyl, C_{2-20} alkenediyl, C_{2-20} alkynediyl, C_{3-30} cycloalkanediyl, C_{3-30} cycloalkenediyl, C_{5-30} cycloalkynediyl, C_{7-30} alkarylenediyl and C_{5-30} arylenediyl, any of which may be optionally substituted with one or more heteroatoms in the carbon backbone.

50. (New) A polymer according to claim 46, wherein substantially all groups R are the same.

51. (New) A polymer according to claim 46, wherein R^1 is selected from the group consisting of C_{1-20} alkyl, C_{1-20} alkoxy, C_{2-20} alkenyl, C_{2-20} alkynyl, C_{3-30} cycloalkyl, C_{3-30} cycloalkenyl, C_{4-30} cycloalkynyl, C_{7-30} alkaryl, C_{5-30} aryl, C_{5-30} aryloxy, any of which may be optionally substituted with one or more heteroatoms in the carbon backbone, organic and inorganic polymers.

52. (New) A polymer according to claim 46, wherein R^1 is selected from the group consisting of methyl, ethyl, propyl, butyl, hexyl, cyclohexyl, octyl, nonyl, dodecyl, eicosyl, norbornyl and adamantyl, vinyl, propenyl and cyclohexenyl, benzyl, phenylethyl and phenylpropyl, phenyl, tolyl, dimethylphenyl, trimethylphenyl, ethylphenyl, propylphenyl,

biphenyl, naphthyl, methylnaphthyl, anthryl, phenanthryl, benzylphenyl, pyrenyl, acenaphthyl, phenalenyl, aceanthrylenyl, tetrahydronaphthyl, indanyl, biphenylyl, methoxy, ethoxy, propoxy, butoxy, pentoxy, hexoxy, phenoxy, 1,2-dimethylbutoxy, preferably phenyl and phenoxy.

53. (New) A polymer according to claim 46, wherein R^2 is selected from the group consisting of C_{1-20} alkanediyl, C_{2-20} alkenediyl, C_{2-20} alkynediyl, C_{3-30} cycloalkanediyl, C_{3-30} cycloalkenediyl, C_{5-30} cycloalkynediyl, C_{7-30} alkarylenediyl and C_{5-30} arylenediyl, any of which may be optionally substituted with one or more heteroatoms in the carbon backbone.

54. (New) A polymer according to claim 46, wherein X is individually selected from the group consisting of Br, I and H, most preferably Br and H.

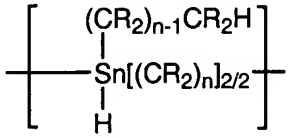
55. (New) A polymer according to claim 46, wherein Y is individually selected from the group consisting of Br, I and H, most preferably Br and H.

56. (New) A polymer according to claim 46, wherein X' is Cl.

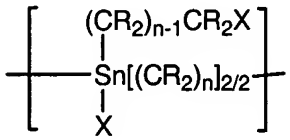
57. (New) A polymer according to claim 46, wherein p in structural unit (1) is 1.

58. (New) A polymer according to claim 46, wherein q in structural unit (1) is 1.

59. (New) A polymer according to claim 46 comprising structural unit (1), wherein the polymer comprises a structural unit (7) and/or (8)



(7)



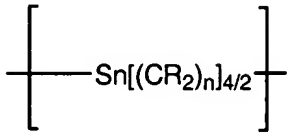
(8)

wherein R is individually selected from the group consisting of H, methyl and propyl, preferably H;

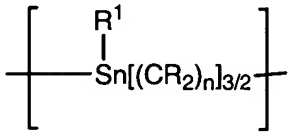
X is Br or I; and,

n is an integer of 1-20, preferably 1-12, more preferably 6, 8, 10, or 12.

60. (New) A polymer according to claim 46 comprising structural unit (1), wherein the polymer comprises a structural unit (9) and/or (10)



(9)



(10)

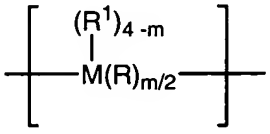
wherein R is individually selected from the group consisting of H, methyl and propyl, preferably H;

R^1 is selected from the group consisting of C_{6-10} aryl and C_{6-10} aryloxy, preferably phenyl and phenyloxy; and,

n is an integer of 1-20, preferably 1-12, more preferably 6, 8, 10, or 12.

61. (New) A polymer according to claim 46, wherein the molecular weight of the polymer is in the range of 100-10000000, more preferably in the range of 1000-1000000, more preferably in the range 10000-100000.

62. (New) A process for the production of a polymer comprising a structural unit (2)



(2)

wherein R is individually selected from divalent hydrocarbon radicals;

R^1 is selected from the group consisting of monovalent hydrocarbon radicals, H, Cl, Br, I, organic polymers and inorganic polymers;

M is a tin, silicon or germanium atom, preferably tin or silicon, more preferably tin; and,

m is an integer of 1-4; comprising reacting a diGrignard reagent having the formula (3)

$$XM'(R)M'X \qquad (3)$$

wherein X is individually selected from the group consisting of Cl, Br and I;

M' is individually selected from the group consisting of Group II metals; and,

R is selected from divalent hydrocarbon radicals;

with a compound having the formula (4)

$$R^1_aMX'_b \qquad (4)$$

wherein R^1 is selected from the group consisting of monovalent hydrocarbon radicals, H, organic polymers and inorganic polymers;

M is a tin, silicon or germanium atom, preferably tin or silicon, more preferably tin;

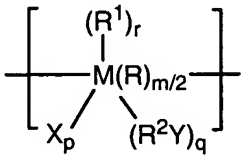
X is individually selected from the group consisting of Cl, Br and I;

X' is individually selected from the group consisting of Cl, Br and I;

a is an integer of 0-2; and,

b is an integer of 2-4.

63. (New) A process for the production of a polymer comprising a structural unit (1)



(1)

wherein R is individually selected from divalent hydrocarbon radicals;

R^1 is selected from the group consisting of monovalent hydrocarbon radicals, organic polymers and inorganic polymers;

R^2 is individually selected from divalent hydrocarbon radicals;

M is a tin, silicon or germanium atom, preferably tin or silicon, more preferably tin;

X is selected from Cl, Br and I;

Y is selected from Cl, Br and I;

m is an integer of 1 or 2;

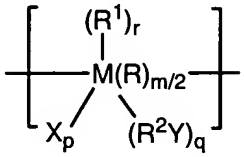
p is an integer of 1 or 2;

q is an integer of 1 or 2;

r is an integer of 0 or 1; and,

wherein m+p+q+r = 4; comprising reacting a compound having formula (2) as defined in claim 69 with a compound selected from a chlorinating agent, a brominating agent and an iodinating agent.

64. (New) A process for the production of a polymer comprising a structural unit (1)



(1)

wherein R is individually selected from divalent hydrocarbon radicals;

R^1 is selected from the group consisting of monovalent hydrocarbon radicals, organic polymers and inorganic polymers;

R^2 is individually selected from divalent hydrocarbon radicals;

M is a tin, silicon or germanium atom, preferably tin or silicon, more preferably tin;

X is selected from H, Cl, Br and I;

Y is selected from H, Cl, Br and I; with the proviso that at least one of X or Y is H;

m is an integer of 1 or 2;

p is an integer of 1 or 2;

q is an integer of 1 or 2;

r is an integer of 0 or 1; and,

wherein m+p+q+r = 4; comprising reacting a polymer comprising a structural unit (1), wherein X and Y are selected from Cl, Br and I, with a reducing agent that is a hydride source.

65. (New) A process according to claim 62, wherein M' is selected from magnesium or calcium, most preferably magnesium.

66. (New) A process according to claim 62, wherein a is 0 or 1.

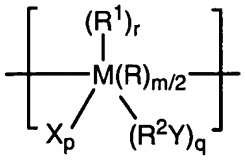
67. (New) A process according to claim 62, wherein b is preferably 3 or 4.

68. (New) A process according to claim 63, wherein the chlorinating, brominating and iodinating agents are Cl_2, Br_2, I_2 respectively.

69. (New) A process according to claim 64, wherein the reducing agent is selected from the group consisting of borohydrides, aluminium hydrides and/or boranes; preferably lithium aluminium hydride, sodium borohydride, sodium hydride, boranes, selectride, lithium borohydride, sodium cyanoborohydride, sodium naphthelenide, DIBAL-H and/or REDAL-H.

70. (New) A process according to claim 64, wherein the reduction reaction is facilitated with a radical initiator, preferably selected from the group consisting of 2,2'-azobisisobutyrpnitrile (AIBN), benzoyl peroxide, tert-butyl peracetate, peracetic acid, tert-amyl peroxybenzoate, tert-butylperoxide and cyclohexanone peroxide.

71. (New) A process for the production of a polymer comprising a structural unit (1)



(1)

wherein R is individually selected from divalent hydrocarbon radicals;

R^1 is selected from the group consisting of monovalent hydrocarbon radicals, organic polymers and inorganic polymers;

R^2 is individually selected from divalent hydrocarbon radicals;

M is a tin, silicon or germanium atom, preferably tin or silicon, more preferably tin;

X is selected from H, Cl, Br and I;

Y is selected from H, Cl, Br and I; with the proviso that at least one of X or Y is H;

m is an integer of 1 or 2;

p is an integer of 1 or 2;

q is an integer of 1 or 2;

r is an integer of 0 or 1; and,

wherein m+p+q+r = 4,

comprising the steps of:

(i) reacting a diGrignard reagent having the formula (3)

$$XM'(R)M'X \qquad (3)$$

wherein X is individually selected from the group consisting of Cl, Br and I;

M' is individually selected from the group consisting of Group II metals; and,

R is selected from divalent hydrocarbon radicals;

with a compound having the formula (4)

$$R^1{}_aMX'_b \qquad (4)$$

wherein R^1 is selected from the group consisting of monovalent hydrocarbon radicals, H, organic polymers and inorganic polymers;

M is a tin, silicon or germanium atom, preferably tin or silicon, more preferably tin;

X is individually selected from the group consisting of Cl, Br and I;

X' is individually selected from the group consisting of Cl, Br and I;

a is an integer of 0-2; and,

b is an integer of 2-4;

(ii) reacting the product of step (i) with a compound selected from a chlorinating agent, a brominating agent and an iodinating agent; and,

(iii) reacting the product of step (iii) with a reducing agent that is a hydride source.

72. (New) A polymer comprising the structural unit (5)

$$(HSi)_n \qquad (5)$$

wherein n is an integer.

73. (New) A polymer according to claim 72, wherein n is an integer of 3-1000000, preferably 10-100000, more preferably 50-50000, most preferably 200-10000.

74. (New) A process for the production of a polymer comprising a structural unit (5)

$$(HSi)_n \qquad (5)$$

wherein n is an integer;

comprising reducing a compound having the formula (6)

$$HSiX''_3 \qquad (6)$$

wherein X" is individually selected from the group consisting of Cl, Br and I.

75. (New) A process according to claim 74, wherein the reducing agent is an ionic metal-containing compound.

76. (New) A process according to claim 75, wherein the reducing agent is an ionic metal-hydrocarbon pair.

77. (New) A process according to claim 75, wherein the reducing agent is selected from the group consisting of ionic Group I, II, XI and XIII metal-hydrocarbon compounds.

78. (New) A process according to claim 77, wherein the metal is selected from the group consisting of Li, Na, K, Mg, Ca, Cu, Hg and Zn.

79. (New) A process according to claim 77, wherein the hydrocarbon is selected from the group consisting of cyclohexenyl, benzyl, phenylethyl and phenylpropyl, phenyl, tolyl, dimethylphenyl, trimethylphenyl, ethylphenyl, propylphenyl, biphenyl, naphthyl, methylnaphthyl, anthryl, phenanthryl, benzylphenyl, pyrenyl, acenaphthyl, phenalenyl, aceanthrylenyl, tetrahydronaphthyl, indanyl and biphenylyl anions.

80. (New) A process according to claim 74, wherein the reducing agent is sodium naphthalenide.